Inventor: Bao
Serial Number 10/686,934
Filed 10/15/03
Attorney Docket 113-02

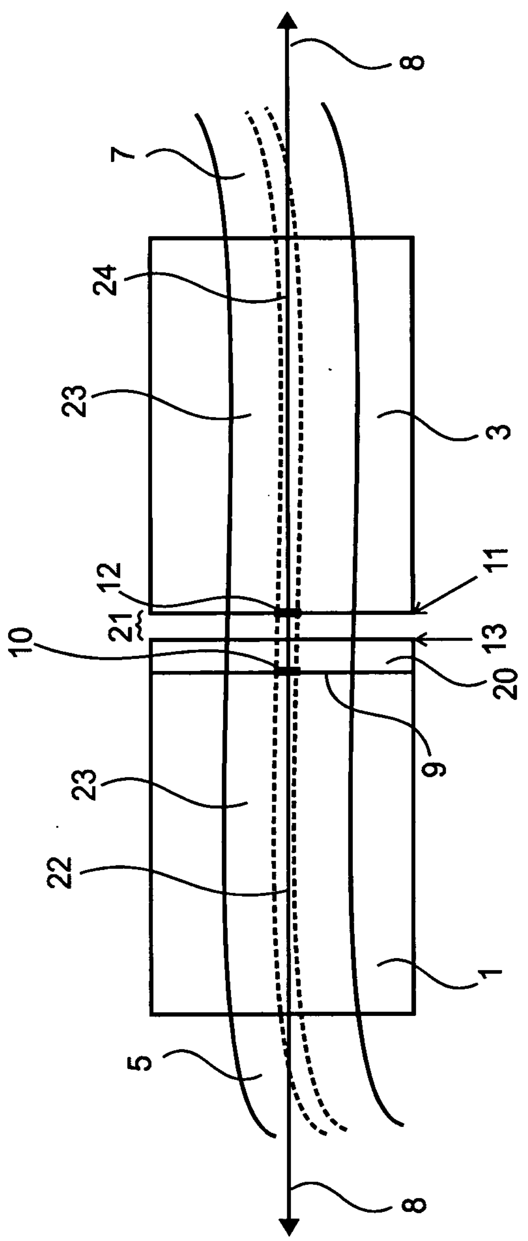

FIG. 1

PRIOR ART

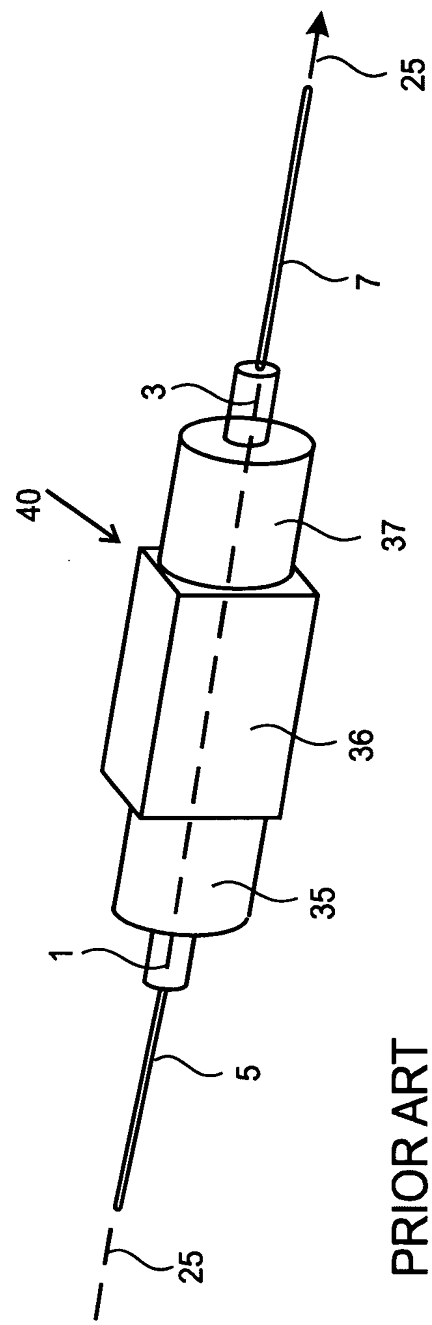

FIG. 2

PRIOR ART

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Serial Number 10/686,934
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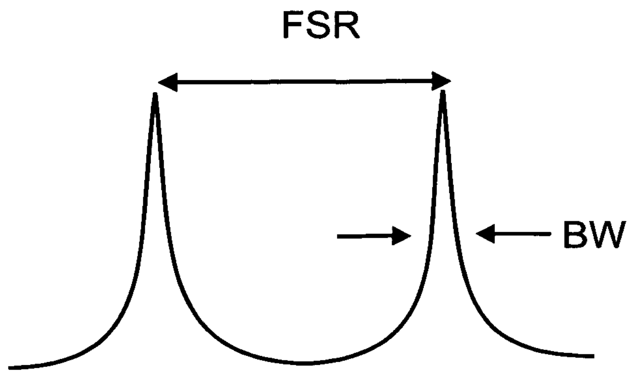


FIG. 3A

Optical frequency or optical wavelength spacing between two adjacent resonance modes (adjacent peaks).

Finesse

$$F = \frac{\pi . \sqrt{R}}{1-R} = \frac{Free\_Spectral\_Range(FSR)}{Bandwidth(BW)}$$

With R = Mirror reflectance and BW = Full Width Half Maximum (FWHM) of the resonance peak.

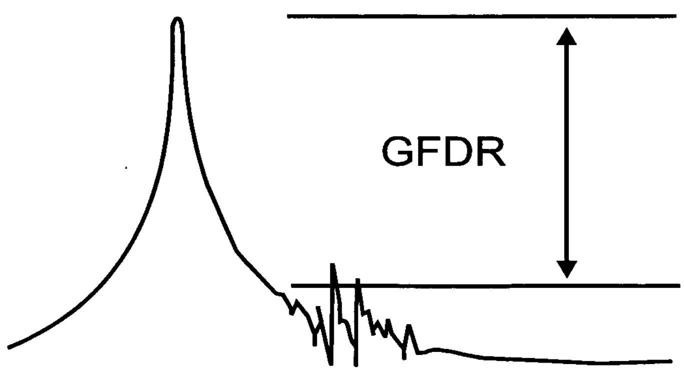


FIG. 3B

Definition of Glitch free dynamic range (GFDR). The GFDR of the tunable filter is defined as the ratio of the peak value of the resonance mode to the value of the peak spurious spectral content (measured over the entire FSR). GFDR is expressed relative to the signal amplitude (dBc).

(A) An FFP formed by two mirrors with double concave profile in core and cladding,
(B) An FFP formed by mirrors with single concave profile in core and cladding.

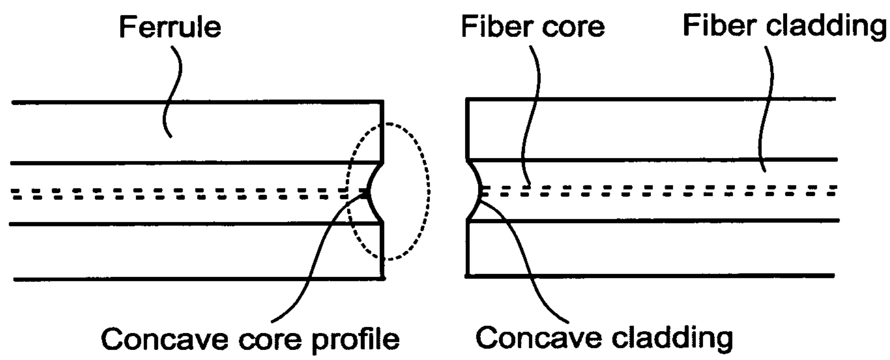


FIG. 4A

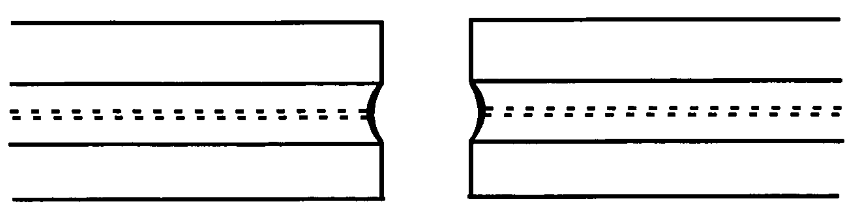
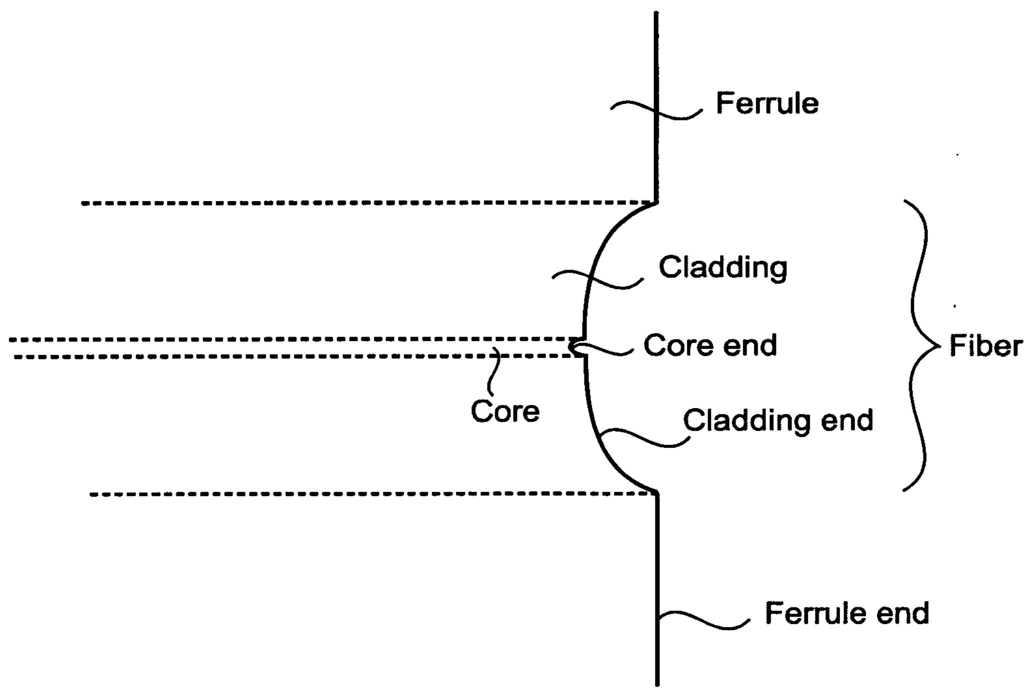


FIG. 4B



Cross-sectional fiber end profile with a double concave profile

FIG. 4C

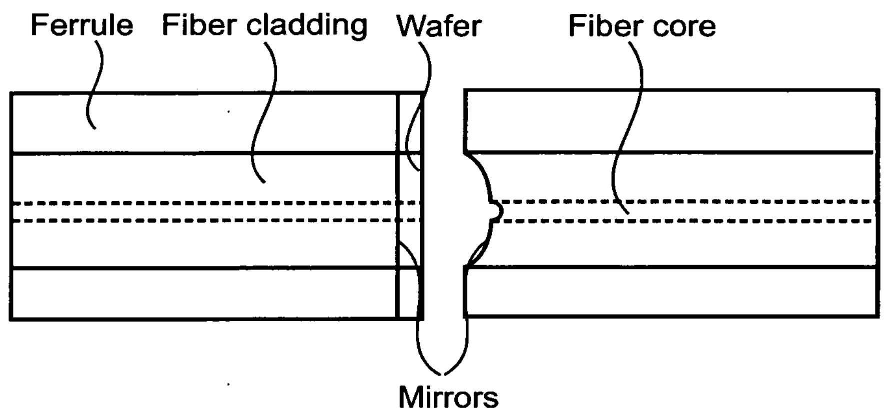


FIG. 5

Illustrates a wafered FFP filter formed with a mirror-ended fiber in which the fiber end has a double concave profile of the fiber core end and the cladding end.

FIG. 6A

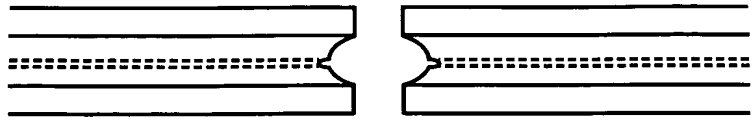


FIG. 6B

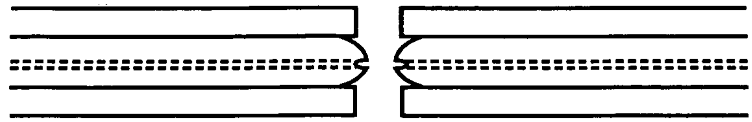


FIG. 6C

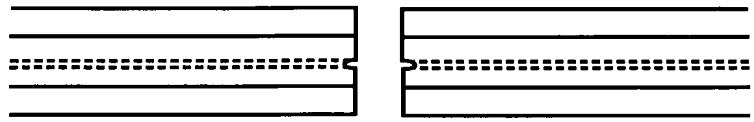


FIG. 6D

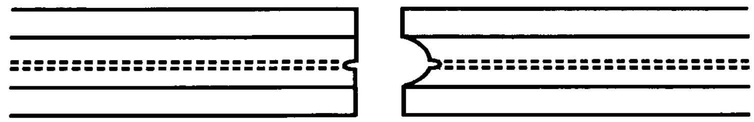


FIG. 6E

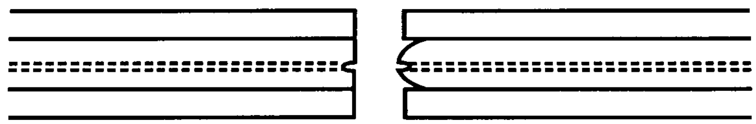


FIG. 6F

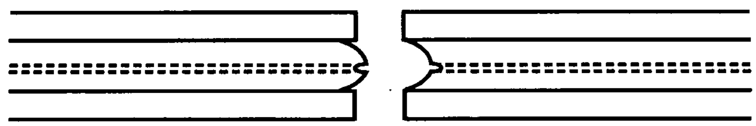


FIG. 6G

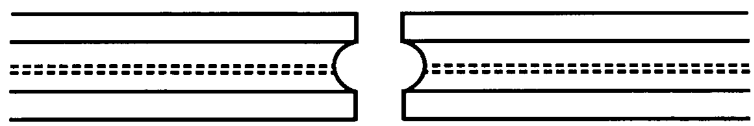


FIG. 6H

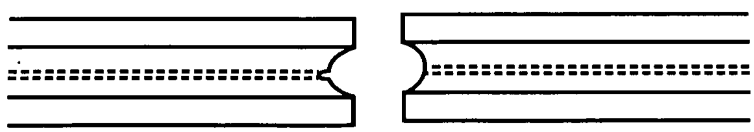


FIG. 6I

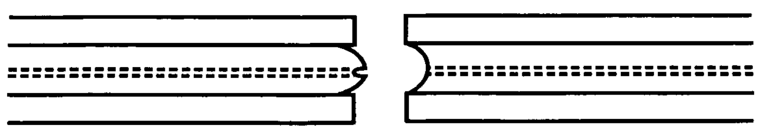
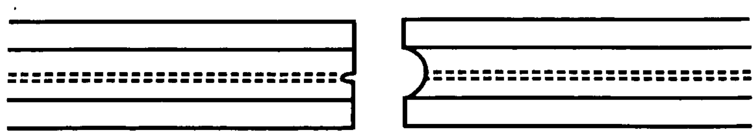


FIG. 6J



FFPs formed with fibers having different core and cladding end cross-sectional profiles.

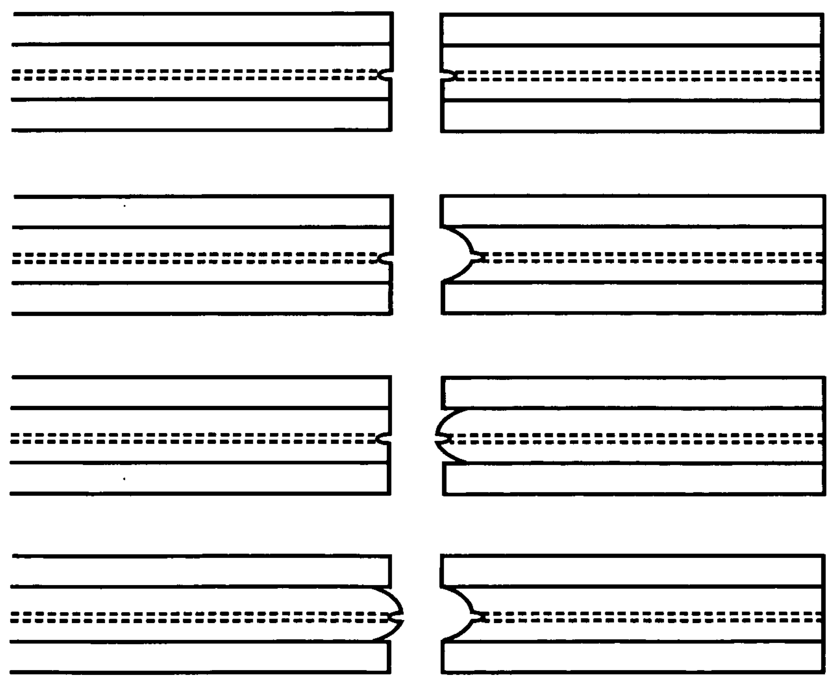
Preferred Combinations for FFPS

FIG. 6C

FIG. 6D

FIG. 6E

FIG. 6F



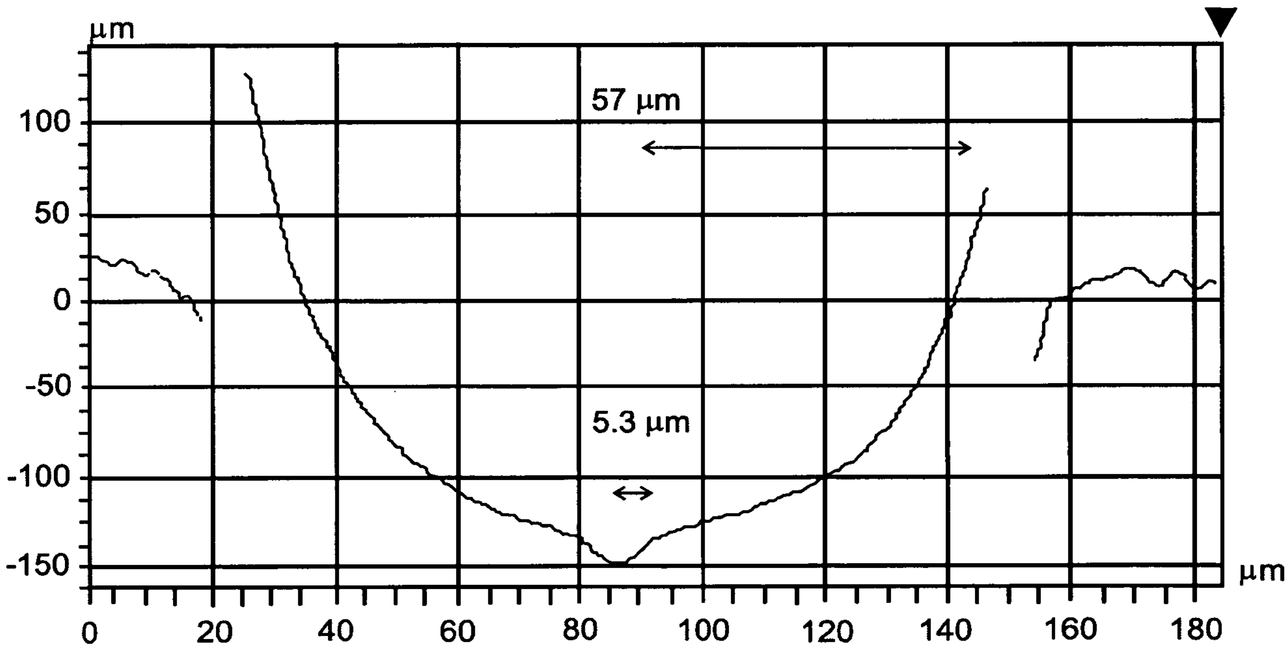


FIG. 7

Figure 7 illustrates an experimentally determined cross-sectional profile of a fiber end (double concave) as measured using an optical profiler Wyko®FOT(TM) Veeco Instruments, Woodbury NY.

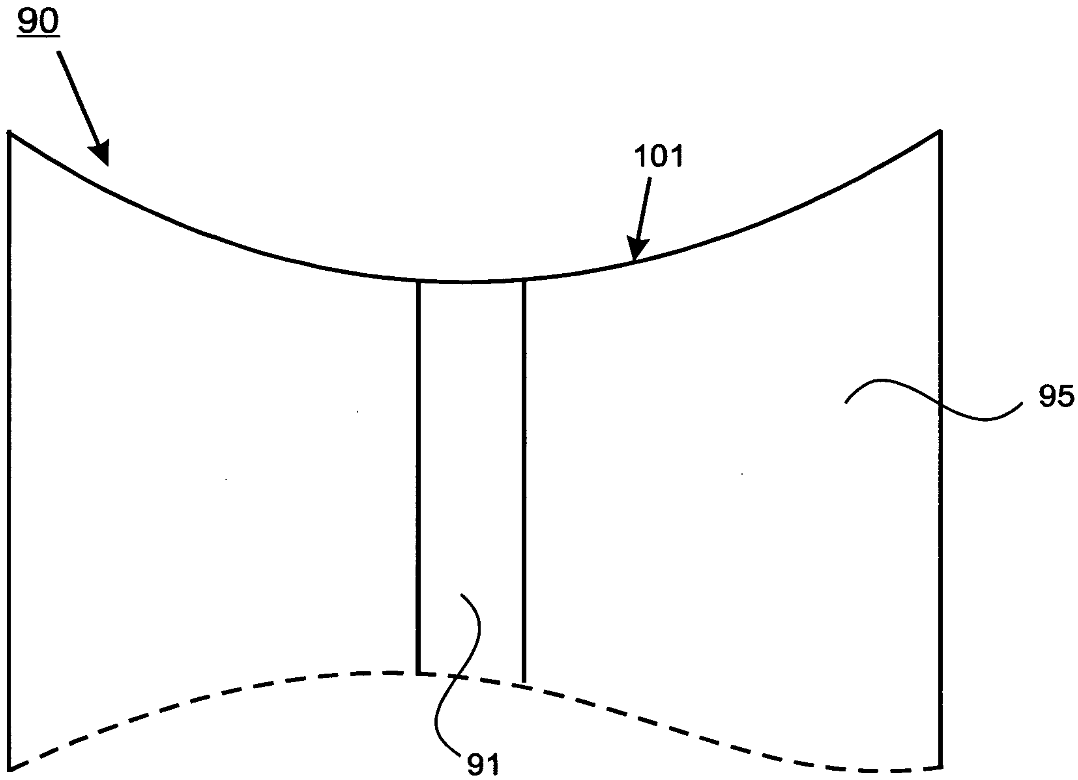


FIG. 8A

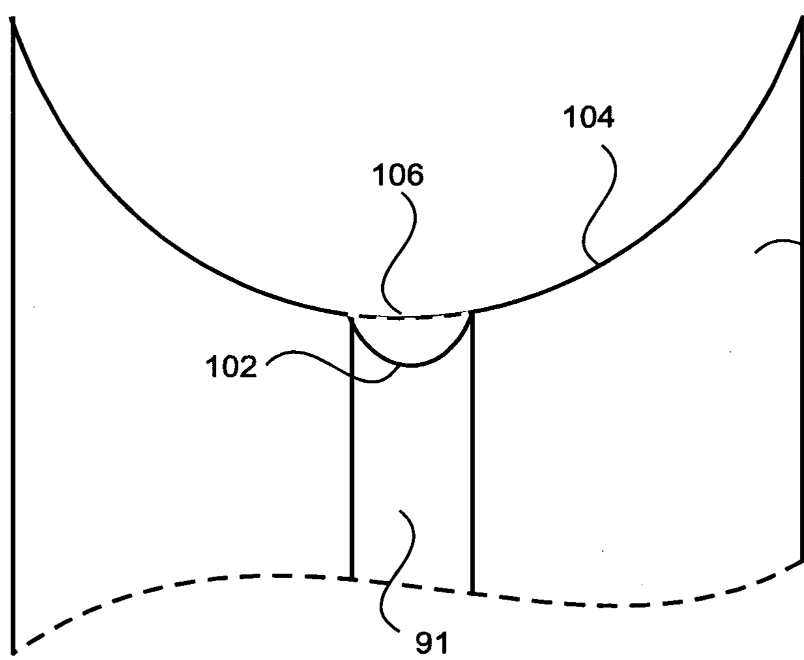


FIG. 8B

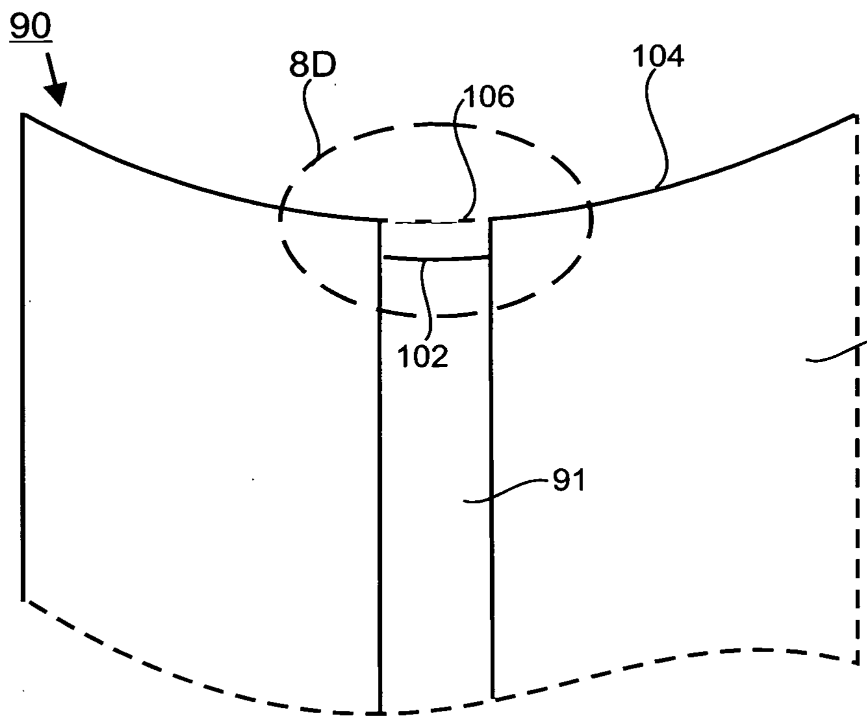


FIG. 8C

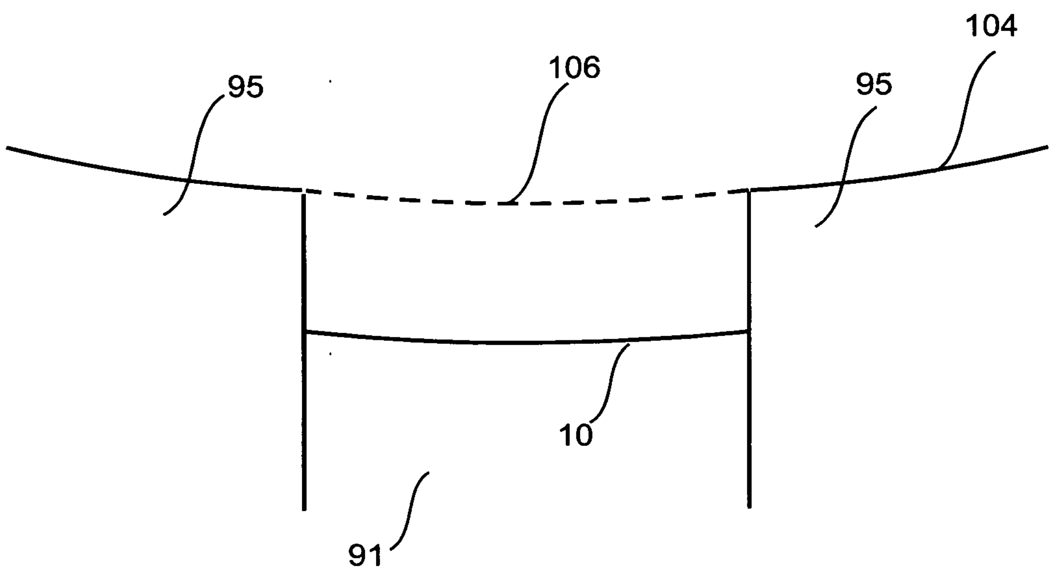


FIG. 8D